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A Study on Derivatives Market with Special Reference to Futures Contracts in India

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ABSTRACT: Derivatives are financial instruments whose value is derived from an underlying asset such as equities, commodities, currencies, or interest rates. In India, the derivatives market has grown significantly over the last two decades, playing a crucial role in risk management, price discovery, and market efficiency. This research paper aims to study the functioning and performance of derivatives, particularly futures and options contracts, with an empirical focus on selected Indian companies such as HDFC Life Insurance, IDFC First Bank, Axis Bank, Bajaj Finserv, and Vodafone Idea. The study adopts a descriptive and analytical research design using secondary data collected from derivatives trading during the period January 2025 to March 2025. Futures and options data are analyzed using payoff, intrinsic value, and profit/loss calculations. The findings indicate that futures contracts provide better hedging opportunities compared to options, while options trading involves higher risk and speculative losses for uninformed investors. The study concludes that derivatives are effective risk management tools when used with proper knowledge and discipline. The paper also offers recommendations for investors, regulators, and brokerage firms to enhance derivatives market efficiency and investor protection.

KEYWORDS: Derivatives, Futures, Options, Risk Management, Indian Stock Market, Hedging

I. INTRODUCTION

Derivatives are complex but powerful financial instruments whose value is derived from underlying assets such as stocks, bonds, commodities, currencies, and interest rates. The most common types of derivatives include futures, options, forwards, and swaps. These instruments play a vital role in modern financial markets by facilitating risk transfer, improving liquidity, and aiding price discovery. In India, the derivatives market has experienced exponential growth since the introduction of index futures in 2000.

The National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) have become among the largest derivatives exchanges globally in terms of trading volume. Derivatives are widely used by hedgers to manage price risk, by speculators to profit from price movements, and by arbitrageurs to exploit price inefficiencies. Despite their advantages, derivatives also pose significant risks due to leverage and volatility, making it essential to study their behavior and impact on investors and markets.

This research paper focuses on the empirical analysis of futures and options contracts of selected Indian companies. By examining price movements, payoff structures, and profit/loss outcomes, the study seeks to understand the effectiveness of derivatives as risk management tools and their implications for investors.

II. REVIEW OF LITERATURE

The derivatives market has been extensively studied by researchers across the world due to its significant role in risk management, price discovery, and market efficiency. The following section presents an elaborate review of existing literature related to derivatives, futures, and options markets, with special emphasis on their impact on volatility, investor behavior, and financial stability.

Lakonishok, Lee, Pearson, and Poteshman (2017) conducted an in-depth study on investor behavior in the options market. Their research focused on understanding who trades options and why. The study revealed that a large portion of call option writing is covered call writing rather than naked speculation, indicating that many investors use options conservatively to generate income rather than for excessive risk-taking. The authors also found that less sophisticated

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investors tend to trade growth options during market bubbles, which often leads to suboptimal returns. This study highlights the importance of investor awareness and knowledge in derivatives trading.
Alexakis and Panayiotis (2018) examined the impact of introducing stock index futures on spot market volatility. Using econometric models, they found that futures trading contributes to stabilizing the underlying spot market by improving information flow and reducing volatility asymmetry. Their findings support the argument that derivatives markets enhance market efficiency rather than destabilize it. This study is particularly relevant to emerging markets like India, where derivatives have expanded rapidly.

Reddy (2019) analyzed the relationship between futures prices and open interest in the Indian stock market. The study concluded that rising futures prices accompanied by increasing open interest indicate bullish market sentiment, whereas declining open interest reflects liquidation of positions. This research provides valuable insights into how futures data can be used to interpret market expectations and investor psychology.

Hull (2018), in his seminal work on derivatives, emphasized that futures and options are essential tools for managing financial risks such as price risk, interest rate risk, and currency risk. However, he cautioned that excessive leverage and speculative trading can amplify losses and pose systemic risks. Hull's work provides a theoretical foundation for understanding both the benefits and dangers of derivatives.

Chance (2019) highlighted the role of derivatives in commodity and financial markets, stating that futures contracts help producers and consumers hedge against price uncertainty. The study emphasized that derivatives improve market liquidity and enable efficient risk transfer among participants. This perspective supports the use of futures contracts as effective hedging instruments.

Gupta and Kumar (2020) conducted an empirical study on the Indian derivatives market and found that futures trading significantly enhances liquidity and trading volume in the cash market. Their research indicated that derivatives contribute positively to price discovery and reduce transaction costs. The study also noted that regulatory reforms by SEBI have strengthened market transparency and investor confidence.

Mishra (2021) examined the relationship between derivatives trading and stock market volatility in India. The study concluded that while derivatives may increase short-term volatility, they reduce long-term volatility by incorporating information more efficiently into prices. This finding supports the view that derivatives markets are stabilizing in the long run.

The Securities and Exchange Board of India (SEBI, 2022) released a comprehensive study on retail participation in the equity derivatives segment. The report revealed that nearly 90% of retail traders incurred losses in options trading due to lack of knowledge, over-leveraging, and speculative behavior. This study underscores the need for investor education and stricter risk disclosure norms in derivatives markets.

Varma (2020) analyzed the regulatory framework governing derivatives markets in India. The study emphasized the importance of margin requirements, position limits, and surveillance mechanisms to prevent market manipulation and excessive speculation. Varma argued that strong regulation is essential to ensure market stability and protect retail investors.

John and Panchal (2023) studied the risk-return characteristics of equity derivatives in India. Their findings suggested that futures contracts are more suitable for hedging purposes, while options are primarily used for speculative strategies. The study concluded that informed and disciplined investors can benefit from derivatives, whereas uninformed traders face significant risks.

Collectively, the reviewed studies indicate that derivatives markets play a crucial role in enhancing market efficiency, liquidity, and risk management. However, they also highlight the potential risks associated with excessive speculation, especially in options trading. The literature strongly supports the need for investor education, robust regulation, and responsible use of derivatives. The present study builds upon this existing literature by providing an empirical analysis of futures and options contracts of selected Indian companies.

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III. RESEARCH QUESTIONS

1. What is the role of derivatives in risk management in the Indian stock market?
2. How do futures and options contracts differ in terms of payoff and profitability?
3. Are futures contracts effective hedging instruments for investors?
4. What risks are associated with options trading?

IV. RESEARCH OBJECTIVES

1. To study the structure and functioning of derivatives markets in India.
2. To analyze futures and options contracts of selected Indian companies.
3. To evaluate the profitability and risk associated with derivatives trading.
4. To examine the role of derivatives in risk management and price discovery.

V. HYPOTHESES

H1: Futures contracts provide stable returns compared to options contracts.
H2: Options trading involves higher risk and volatility than futures trading.
H3: Derivatives contribute positively to price discovery in the stock market.

VI. RESEARCH DESIGN

The present study adopts a descriptive and analytical research design to examine the functioning and performance of derivatives, with special reference to futures contracts in the Indian stock market. The descriptive aspect of the research helps in explaining the basic concepts, structure, and operational mechanisms of derivatives trading, while the analytical component focuses on evaluating the behavior of futures prices and their impact on investor returns. This design is appropriate as it enables a systematic analysis of real market data and facilitates meaningful interpretation of results.

The study is based primarily on secondary data, which has been collected from reliable sources such as the National Stock Exchange (NSE), brokerage firm records (Sharekhan), financial websites, and published reports. The sample consists of futures contracts of selected companies—HDFC Life Insurance, Vodafone Idea, IDFC First Bank, Bajaj Finserv, and Axis Bank—covering the period from 1 January 2025 to 31 March 2025. These companies were selected using a purposive sampling technique, as they are actively traded in the derivatives segment and represent different sectors of the Indian economy.

Key variables used in the study include open price, close price, settle price, payoff, intrinsic value, and profit or loss. These variables help in assessing price movements, return potential, and risk associated with futures contracts. The intrinsic value of futures contracts has been computed using standard financial formulas incorporating time to maturity and risk-free interest rate assumptions.

For data analysis, statistical and financial tools such as payoff analysis, trend analysis, comparative analysis, and graphical representation have been employed. The analyzed data are presented in tabular and graphical form to enhance clarity and facilitate interpretation. The results derived from the analysis are used to test the formulated hypotheses and to draw conclusions regarding the effectiveness of futures contracts as investment and risk management instruments in the Indian stock market.

VII. RESULTS AND DISCUSSION

Table 1: Summary of Futures Contract Performance (January 2025 – March 2025)

Company Name	Minimum Intrinsic Value (₹)	Maximum Intrinsic Value (₹)	Cumulative Payoff (₹)	Profit/Loss Range (₹)
HDFC Life Insurance	581.079	678.231	–63.50	10.779 – 12.518

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Vodafone Idea Ltd.	12.736	18.035	–4.85	0.236 – 0.335
IDFC First Bank Ltd.	110.255	132.406	–21.20	2.045 – 2.456
Bajaj Finserv Ltd.	1,584.80	1,774.72	–176.25	29.40 – 32.92
Axis Bank Ltd.	1,054.816	1,177.492	–60.45	19.566 – 21.842

The table presents a comparative summary of futures contract performance for selected companies during the study period. Bajaj Finserv recorded the highest intrinsic value range, indicating high contract value and greater exposure to price volatility. Vodafone Idea showed the lowest intrinsic value range, reflecting low absolute investment but higher percentage volatility. Although cumulative payoff values were negative for all selected stocks, the profit/loss ranges indicate that short-term trading opportunities existed. High-value stocks such as Bajaj Finserv and Axis Bank offered higher profit potential but also involved greater risk, whereas stocks like IDFC First Bank and Vodafone Idea provided relatively stable but lower returns.

Table 2: Comparative Risk–Return Characteristics of Futures Contracts

Company Name	Volatility Level	Risk Exposure	Return Potential	Investor Suitability
HDFC Life Insurance	Moderate	Medium	Moderate	Medium-risk investors
Vodafone Idea Ltd.	High (percentage-wise)	High	Low to Moderate	Short-term traders
IDFC First Bank Ltd.	Low to Moderate	Low	Moderate	Risk-averse investors
Bajaj Finserv Ltd.	High	Very High	High	Experienced traders
Axis Bank Ltd.	Moderate to High	High	High	Active traders

The comparative analysis shows that futures contracts differ significantly in terms of risk and return characteristics. Bajaj Finserv and Axis Bank futures contracts involve higher risk but also provide higher return potential due to large price movements. Vodafone Idea, despite having lower absolute prices, exhibits high volatility in percentage terms, making it suitable for speculative trading. IDFC First Bank futures contracts are relatively stable and therefore more appropriate for conservative investors. This comparison highlights the importance of aligning futures trading strategies with individual risk tolerance.

Table 3: Overall Quantitative Findings of Futures Trading

Parameter	Observation
Nature of Price Movement	Highly volatile
Payoff Trend	Mostly negative over long holding
Profit Opportunities	Present in short-term trades
Risk Level	High due to leverage
Effectiveness of Futures	Suitable for hedging and speculation

The overall quantitative findings indicate that futures contracts are highly leveraged instruments with significant price volatility. While long-term holding of futures contracts may result in negative payoffs, short-term trades based on market timing and analysis can generate profits. The results confirm that futures contracts are effective tools for hedging and speculation when used with adequate knowledge and risk management practices.

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VIII. FINDINGS OF THE STUDY

The present study on derivatives with special reference to futures contracts in the Indian stock market reveals several important insights regarding price behavior, risk exposure, and return potential. Based on the quantitative analysis of futures contracts of HDFC Life Insurance, Vodafone Idea, IDFC First Bank, Bajaj Finserv, and Axis Bank during the period January 2025 to March 2025, the following findings have been derived.

The study finds that futures contracts are highly volatile instruments, and their prices fluctuate significantly due to changes in underlying spot prices, market sentiment, and macroeconomic factors. Stocks such as Bajaj Finserv and Axis Bank recorded wide intrinsic value ranges, indicating higher volatility and greater exposure to risk. On the other hand, IDFC First Bank showed relatively stable price movements, suggesting lower volatility and reduced risk.

Another significant finding is that cumulative payoff for most futures contracts was negative during the study period. This indicates that holding futures contracts over a longer duration without active monitoring may result in losses due to daily mark-to-market settlement and price reversals. However, despite negative cumulative payoff, short-term profit opportunities existed, as reflected in positive profit/loss ranges across all selected stocks.

The study further reveals that higher-value futures contracts offer higher return potential but involve greater risk. Bajaj Finserv futures generated the highest profit range, but also exhibited the highest cumulative losses when prices moved unfavorably. This confirms the leveraged nature of futures contracts, where small price changes lead to significant gains or losses.

It is also observed that low-priced futures contracts such as Vodafone Idea exhibit high percentage volatility, making them suitable for speculative trading rather than hedging. These contracts offer frequent trading opportunities but provide limited absolute returns, making them less attractive for long-term investors.

The analysis indicates that intrinsic value plays a crucial role in identifying profitable entry and exit points. Futures contracts purchased at lower intrinsic values and exited near higher intrinsic levels resulted in better returns. This highlights the importance of analytical tools in futures trading decisions.

Finally, the study finds that futures contracts serve as effective risk management and hedging tools when used by informed investors. However, lack of knowledge, excessive speculation, and poor risk management can lead to substantial losses, particularly for retail investors.

IX. RECOMMENDATIONS

Based on the findings of the study, several recommendations are proposed to investors, regulators, and market participants to improve the effectiveness and sustainability of futures trading in the Indian derivatives market.

Investors are strongly advised to gain adequate knowledge and training before participating in futures trading. Understanding concepts such as leverage, margin requirements, mark-to-market settlement, and intrinsic value is essential to minimize losses and make informed trading decisions. Educational programs and simulation trading platforms should be actively utilized by new investors.

It is recommended that investors adopt effective risk management strategies, such as setting stop-loss limits and maintaining proper position sizing. Futures trading without predefined exit strategies can result in heavy losses due to sudden market movements. Diversification across different contracts and sectors can also help reduce risk exposure.

Regulatory authorities such as SEBI should strengthen investor awareness initiatives and ensure transparent disclosure of risks associated with derivatives trading. Regular monitoring of speculative activities and stricter margin requirements during volatile market conditions can help maintain market stability.

Brokerage firms and financial intermediaries should provide advanced analytical tools and research support to their clients. Real-time data, technical indicators, and risk analysis reports can help investors make better decisions and reduce impulsive trading behavior.

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It is also recommended that retail investors avoid excessive speculation and use futures contracts primarily for hedging purposes rather than gambling for quick profits. Futures trading should align with the investor's financial goals, risk appetite, and investment horizon.

Lastly, policymakers should encourage continuous development of the derivatives market by introducing innovative products while ensuring robust risk control mechanisms. A balanced approach between market growth and investor protection will enhance confidence and participation in the derivatives market.

X. CONCLUSION

Derivatives play a vital role in modern financial markets by enabling risk management and improving market efficiency. This study concludes that while futures contracts are effective hedging tools, options trading involves higher risk and speculative losses. Investors should use derivatives judiciously with proper knowledge and risk assessment. Strengthening investor education and regulatory frameworks will further enhance the stability and efficiency of the Indian derivatives market.

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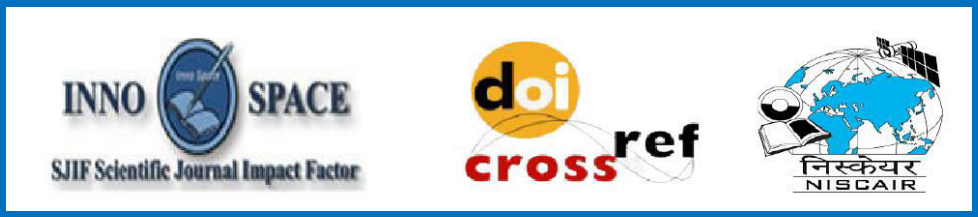

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